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- (71) Applicant (for all designated States except US): **INTERNATIONAL BUSINESS MACHINES CORPORATION** [US/US]; New Orchard Road, Armonk 10504 (US).
- (71) Applicant (for LU only): **IBM DEUTSCHLAND GMBH** [DE/DE]; Pascalstrasse 100, 70569 Stuttgart (DE).
- (72) Inventors; and
(75) Inventors/Applicants (for US only): **ARRAS, Patrick** [DE/DE]; Hintere Strasse 13, 71263 Weil der Stadt (DE).
STEINHOFF, Alfons [DE/DE]; Kirchhalde 5, 71083 Herrenberg (DE).
- (74) Agent: **KAUFFMANN, Wolfgang**; Postal Code, 70548 Stuttgart (DE).
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(54) Title: **METHOD AND SYSTEM FOR ONLINE ANALYTICAL PROCESSING (OLAP)**

200

Real Facts				
Fact	Customer	Article	Month	Sales
1	Miller	a4711	Jul	30
2	Brown	a4711	Jan	60
3	Miller	a4711	Jan	30
4	Miller	a4711	May	70
5	Miller	a0815	Dec	30
6	Jones	a4711	Jan	50
7	Jones	a0815	Aug	50
8	Brown	a0815	Oct	60
9	Jones	a4711	Nov	20
10	Miller	a4711	Mar	40
11	Brown	a4711	Sep	10
12	Jones	a0815	Feb	60
13	Brown	a0815	Apr	30
14	Brown	a4711	Dec	30
15	Brown	a0815	Feb	50
16	Jones	a0815	Sep	30
17	Jones	a0815	Mar	50
18	Brown	a0815	Nov	20
19	Miller	a0815	Apr	70
20	Jones	a4711	Jun	10

(57) Abstract: Disclosed are a method and system for generating user-defined pivot views of data records contained in a database where, as depicted in Fig. 2a, an underlying real facts table at first is extended by continuous index values (200) which provides a continuous numbering of the facts from ,1' to ,x' (x = 20 in the present example). In the resulting pivot view shown in Fig. 2b, in each cell (210) the indices of those facts are presented which sales value has to be summed-up in the corresponding cell. The pivot view is generated by means of a sequence vector. The underlying sequence vector for the pivot view in Fig. 2b is depicted in Fig. 2c and consists of two columns (260, 270), the left column (260) containing continuous numbers from again ,1' to ,x' and the right column (270) containing the mentioned index values (275) depicted in Fig. 2a in an ordered arrangement that enables sequentially building-up the pivot view of Fig. 2b.

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ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,
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A. CLASSIFICATION OF SUBJECT MATTER
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According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, INSPEC, COMPENDEX, IBM-TDB

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>US 2002/138460 A1 (COCHRANE ROBERTA JO ET AL) 26 September 2002 (2002-09-26)</p> <p>abstract</p> <p>paragraph '0031!</p> <p>paragraph '0050!; figures 2,3</p> <p>paragraph '0071!</p> <p>paragraph '0076!</p> <p>paragraph '0098!</p> <p>paragraph '0119!; figure 6</p> <p>paragraph '0121!</p> <p>paragraph '0124!</p> <p>paragraph '0182!</p> <p style="text-align: center;">----- -/-</p>	1-17

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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Name and mailing address of the ISA

European Patent Office, P.B. 5618 Patentlaan 2
NL - 2280 HV Rijswijk
Tel (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax (+31-70) 340-3016

Authorized officer

Moon, T

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6 049 804 A (BREEDEN RANDALL E ET AL) 11 April 2000 (2000-04-11) abstract column 4, line 49 - column 5, line 33; figures 5,6 column 7, line 11 - line 28; figure 13	1-17
A	US 6 427 123 B1 (SEDLAR ERIC) 30 July 2002 (2002-07-30) abstract column 6, line 66 - column 7, line 15; figure 5 column 9, line 20 - line 54	1-17

INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 2002138460	A1	26-09-2002	NONE	
US 6049804	A	11-04-2000	US 5727197 A EP 0772139 A2 JP 9212528 A	10-03-1998 07-05-1997 15-08-1997
US 6427123	B1	30-07-2002	AU 762942 B2 AU 3596700 A CA 2359880 A1 EP 1145143 A2 JP 2003505748 T WO 0049533 A2 US 2003037056 A1 US 2003033285 A1	10-07-2003 04-09-2000 24-08-2000 17-10-2001 12-02-2003 24-08-2000 20-02-2003 13-02-2003